

How We Consistently Apply

Revising Time of Year Windows

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Massachusetts



Marine Fisheries



North shore: meso tidal
Drumlins, bedrock, and
glacially deposited material

South shore: microtidal
Glacial delta and till
sediment deposits

Mass. *Marine Fisheries*

Protect and enhance fisheries resources in Mass.

- We manage all commercial and recreational fishing activity in Massachusetts and some adjacent federal waters.
 - Mass. commercial fishing industry:
\$8.2 billion/yr
 - Mass. recreational fishing:
estimated 700,000 anglers



Bluefin tuna

Bowen, et al. 2006. An Assessment of the Coastal and Marine Economies of Massachusetts. Mass. Annual Gross Regional Product

Managed Species

- 84 Managed

- 20 finfish species with specific state regulations
- 23 finfish species managed under interstate and federal regs (ASMFC, MAFMC, and NEFMC)
- 15 protected species (whales, turtles, porpoises)
- 9 species of coastal sharks
- 16 invertebrate species (shellfish, squid, lobster, crab)
- Humans

- 100+ More in resource trawl survey





Managing Adverse Impacts

Protect and enhance fisheries resources in Mass.

- Direct impacts: Mortality from Fishing and Natural Causes
 - Anthropogenic: The main focus of our agency is managing fishing effort
 - Natural: caused by predation, senescence, and starvation
- Management tools:
 - Controlling effort
 - Total allowable catches (quotas)
 - Gear modifications (decreasing efficiency) to minimize catch (e.g. escape vents, mesh size restrictions)
 - Size limitations (both minimum and maximum)
 - Decreasing time allowed to fish (days at sea)
 - Natural mortality is built into stock assessments



Figure from Smolowitz by Amaral

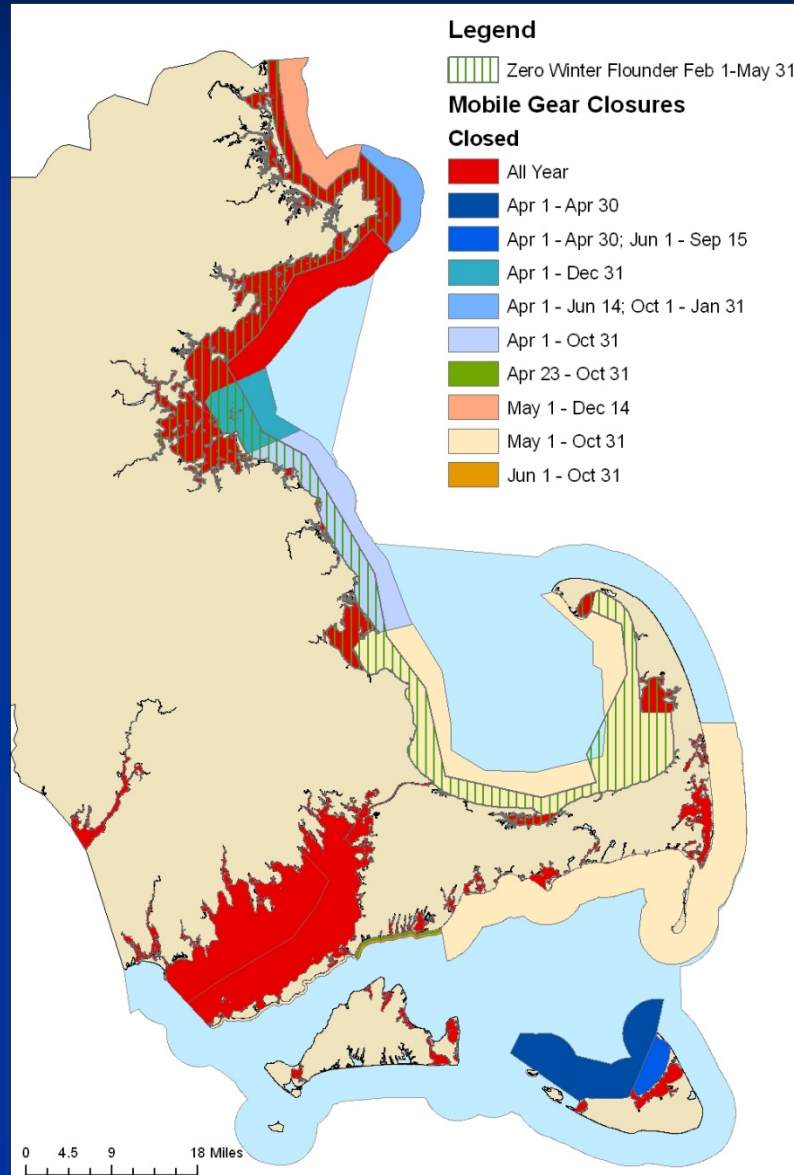
Managing Adverse Impacts

Protect and enhance fisheries resources in Mass.

- Indirect impacts: Habitat Degradation
 - Anthropogenic: construction, water quality, use
 - Natural: unusually warm or cold years, storms, increased predation, decreased prey, change in light
- Management tools:
 - Gear engineering to reduce contact with seafloor
 - Closure of vulnerable areas
 - Review of coastal projects to avoid/minimize impact
 - Preparation for natural events?
 - Stocking/moving? Nothing really works.
 - Indirect impacts are NOT built into stock assessments

Closing Vulnerable Areas

- Regulatory inshore closures to protect vulnerable habitat and life stages



Mobile gear:
Seines
Scallop dredges
Clam dredges
Otter trawls

Review of Coastal Projects

- *Marine Fisheries* role in permitting
 - Non-regulatory: does not issue permits or write conditions for permits
 - Provides resource information to the permitting agencies
 - What resources can be impacted
 - What methods can be used to reduce impact
 - Construction technique specifications (e.g. environmental bucket)
 - Alterations to avoid resource (e.g. changing footprint)
 - What time of year work can be done to reduce impact
 - Allows a focus on what is best for natural resources

Time of Year

- A TOY is the recommended time of year when in-water silt producing work should be avoided to protect a resource
- A TOY may not be recommended if a project utilizes methods that would avoid impacts or is in an area where the absence of a vulnerable resource can be demonstrated



Winter flounder

TOY: Jan 15-May 31
Population decline: zero
possession limit

Life stages vulnerable to
impacts:

- Demersal eggs, larvae, yoy may be smothered by turbidity
- Eggs may be aggregated



Blueback herring

TOY: Apr 1-June 30
Population decline: zero
possession limit

Life stages vulnerable to
impacts:

- Aggregated during spawning runs
- Eggs are often aggregated

Dredging Time Restrictions

	J	F	M	A	M	J	J	A	S	O	N	D
Winter flounder												
Horseshoe crabs												
Diadromous												
Shellfish												
Plovers (beach fill)												
Tourists												
Weather												
Beach nourishment												
RANK	2	3	2	3	5	5	4	3	5	5	3	2

TOYs Are Contentious

- They can be expensive to construction projects
 - Logistically challenging
 - Not all projects can be done in the time allowed
 - Especially considering other restrictions such as tourist season
- Environmental cost of impact is hard to quantify
 - What does a potential impact to winter flounder eggs cost?

Answers to a few basic questions

1. Why do we have these again?
2. How come dredging projects are targeted? Don't the fishermen cause more damage?
3. Are the dates correct?
4. Can they be changed?
5. Do they apply everywhere?

Question 1: Why do we have TOYs at all?

- Regulatory requirement avoid, minimize, and/or mitigate impact for coastal construction projects
- TOYs are designed to reasonably encompass vulnerable life stages so a project can either avoid or minimize an impact

Question 2: How come dredging projects are targeted?

Doesn't climate change/overfishing/the other person's impact cause the problem?

- Impacts such as climate change and stormy years cannot be managed, and mitigating measures such as stocking don't work.
- Fishing impacts are controlled, including TOYs on gear types and targeted species. Closed areas.
- Water quality impacts are controlled through water quality standards.

Types of Projects In Mass.

Dredging

Disposal

Wind turbines and
support structures

Mining (sand and
gravel)

Beach fill

Nearshore fill

LNG facilities

Anchorage

Docks, piers

Pipelines



Question 3: Are the dates correct?

- Winter flounder TOY is Jan 15-May 31
 - Larvae found from December to September
 - 95% of larvae found between January and June

Power plant entrainment studies

- Federal-level guidance
 - Generated based on workshops with fishermen and scientists with hundreds of years of collective experience studying and catching the species

Yes, they are correct.

Question 4: Can they be changed?

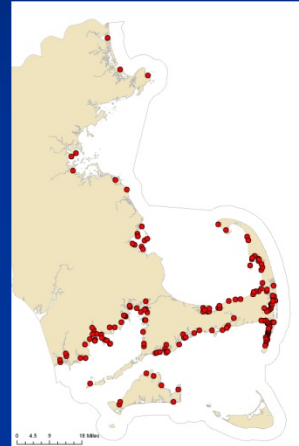
- General changes, yes. Needs workshop-like approach.
- Site specific, maybe. Research needs:
 - 10 - 30 years of research; must account for interannual variability
 - Multiple veins of research (monitoring adults, larvae, back calculating birth dates with otoliths, and examining environmental factors)
 - Multiple stations within a single waterbody

Question 5: Do they apply everywhere?

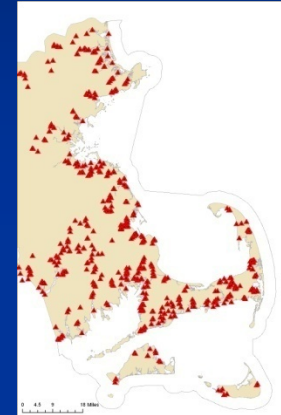
No.

Project specific based on overall impact level:

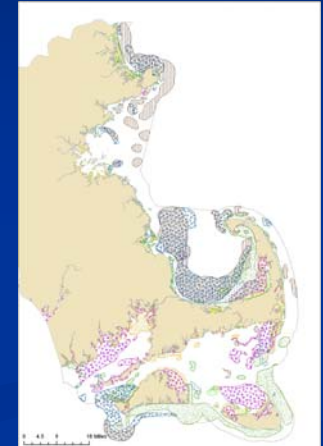
- Location
- Timing
- Resources present & vulnerable
- Construction methodology



Horseshoe
crab
spawning
beaches



Diadromous
fish runs

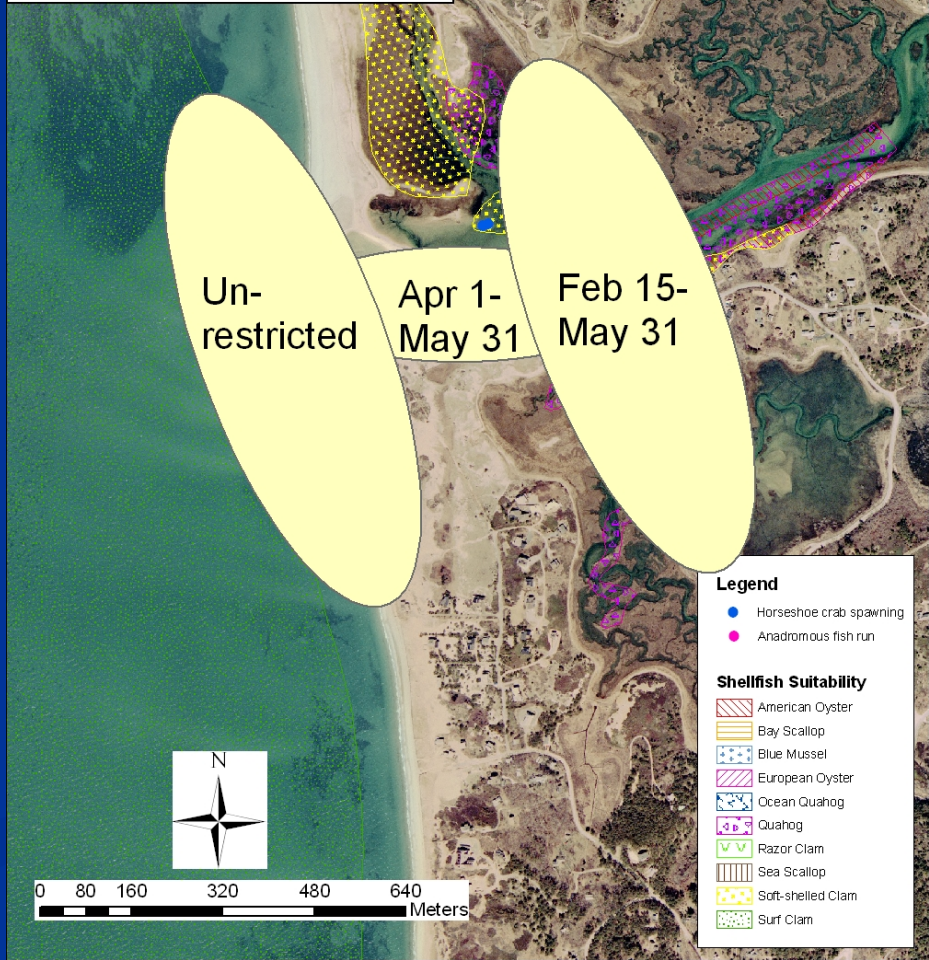
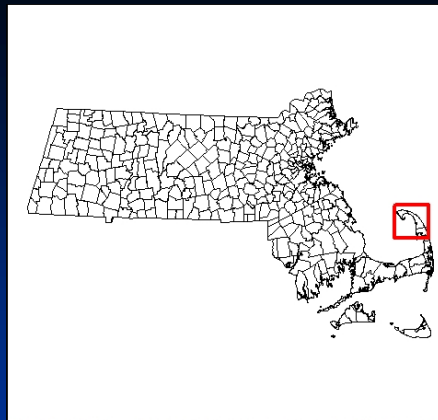
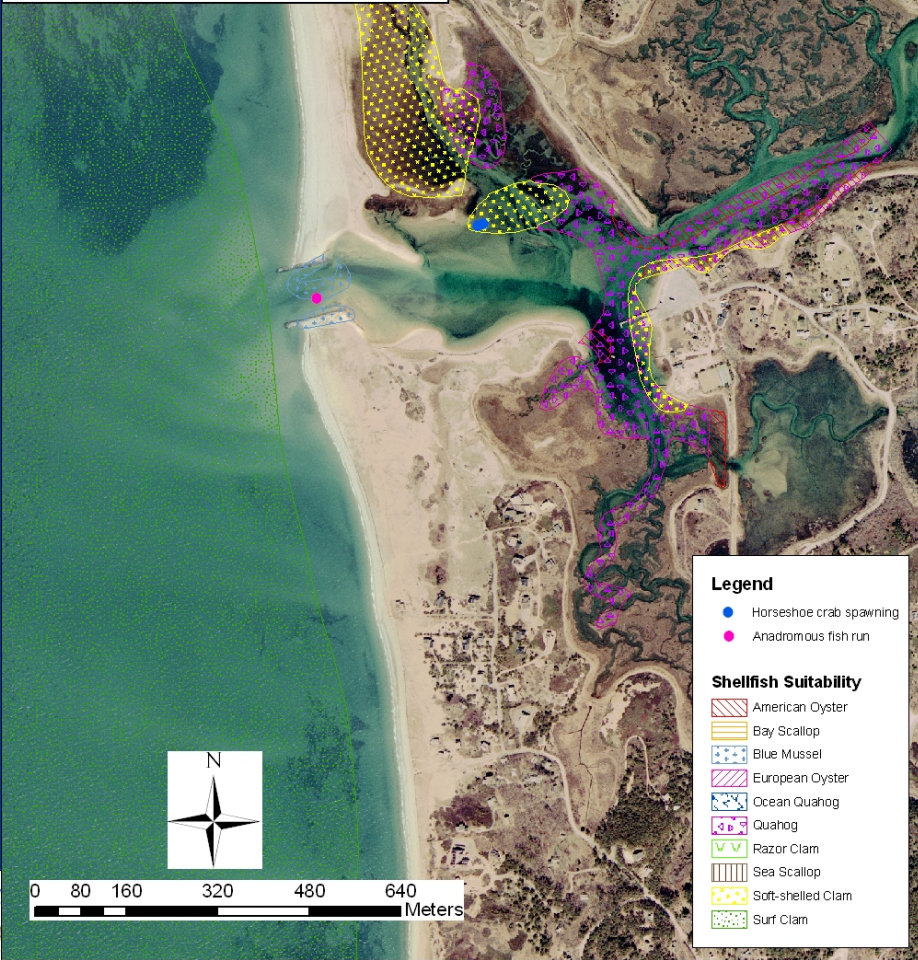
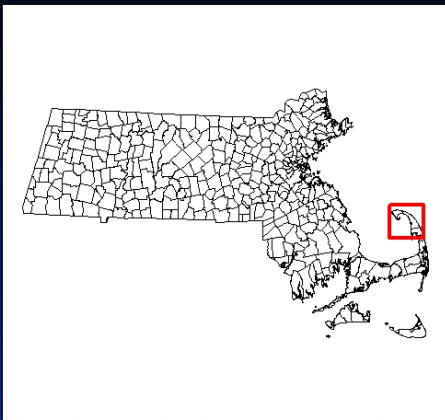


Shellfish
habitat

Young winter flounder are ubiquitous in shallow bays and estuaries along the east coast of the United States from Canada (ASMFC).

What We're Doing

- Consistent, transparent approach
 1. Document most recent life history information that underlies TOYs DRAFT AVAILABLE!
 2. Designate boundaries for TOY restrictions in each embayment 3 IN DRAFT FORM!
 3. Create rules using a stakeholder approach to establish level of impact STAKEHOLDER GROUP IDENTIFIED!





Popponesset Bay Embayment Zoning for Environmental Review



Legend

- Horseshoe Crab Spawning Beach
- Mapped Eelgrass
- Anadromous Fish Runs

- Shellfish Habitat

Embayment Zoning

- Approach Channel
- Embayment
- Inlet Channel
- Tidal Delta

0 0.2 0.4 0.8 Miles

Produced 1/28/2009

"RULES"

Approach channel = no toy unless >1,000 cy (?) which may require consideration of impact to squid

Embayment = strict winter flounder toy of Jan 15-May 31; possible shellfish and anadromous toys depending on extent of impact of project (based on location, sediment type, size, methodology, and cumulative impact)

Inlet Channel = no toy unless >1,000 cy or >25% of width of channel impacted and impact should occur no more than 1x per 6 months; if that does not apply, toys for passage of winter flounder (Jan 15-May 31), anadromous (Apr 15-June 30), and horseshoe crabs (May-June).

Tidal delta = with appropriate methodology, may receive winter flounder waiver (would need to be more specific)

Massachusetts



Marine Fisheries

Coming Up

- Continued improvements
 1. Establish flowchart for applicants to determine if a project will likely have a TOY
 2. Provide guidance regarding ways to improve a project for an applicant to reduce the risk of having a TOY

What We Need

- Better impact studies (e.g. Wahle et al)
- What is the impact on tourism?
- Better basic life history information (e.g. Berry et al; horseshoe crab burial)
- Cumulative impact assessments – where are all the projects in a given year?
- Examination of caps and how to define them
- Regional Sediment Management; offshore sand mining
- We can summarize TOYs for the east coast: need contact list

Common Language

- We oversee or are involved with activities that are considered to have a major impact on the seafloor and the overall ecosystem.
- The evidence for adverse impact, or even basic life history information, is often anecdotal or lacking altogether.
- Collecting the information is very (very) expensive and takes a long (long) time.
- Sometimes regulations are driven by best professional judgment – “my scientist says it’s fine/not fine.”
- “The dredge contractor didn’t show up on time and then had trouble with the weather” – fish are the same way!



Acknowledgements

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Links

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http://www.mass.gov/dfwele/dmf/programsandprojects/technical_review.htm#menu

CERF Sessions on life history and TOYs in
Portland, OR: www.erf.org

Abstracts due May 15th!